

Objective: To write and evaluate exponential expressions that model growth and decay situations.



Biller bacteria



doubles every hour (eeewww!)

If we begin with 25 bacteria, how many
Biller bacteria will there be after 6 hours?

infinite cl





I'm a link



E. coli? Or Biller Bacteria? 



Create a table



Time (hr)							
Population							



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Time (hr)	0	1	2	3	4	5	6
Population	25	50	100	200	400	800	1600

Write an Algebraic Expression

bacteria after n hours.



ate exponential
h and decay situations.

Time (hr)	0	1	2	3	4	5	6
Population	25(1)	25(2)	25(4)	25(8)	25(16)	25(32)	25(64)

$25(2^0)$

$25(2^1)$

$25(2^2)$

$25(2^3)$

$25(2^4)$

$25(2^5)$

$25(2^6)$

$25(2^n)$ is called an exponential expression

2 is the "multiplier"

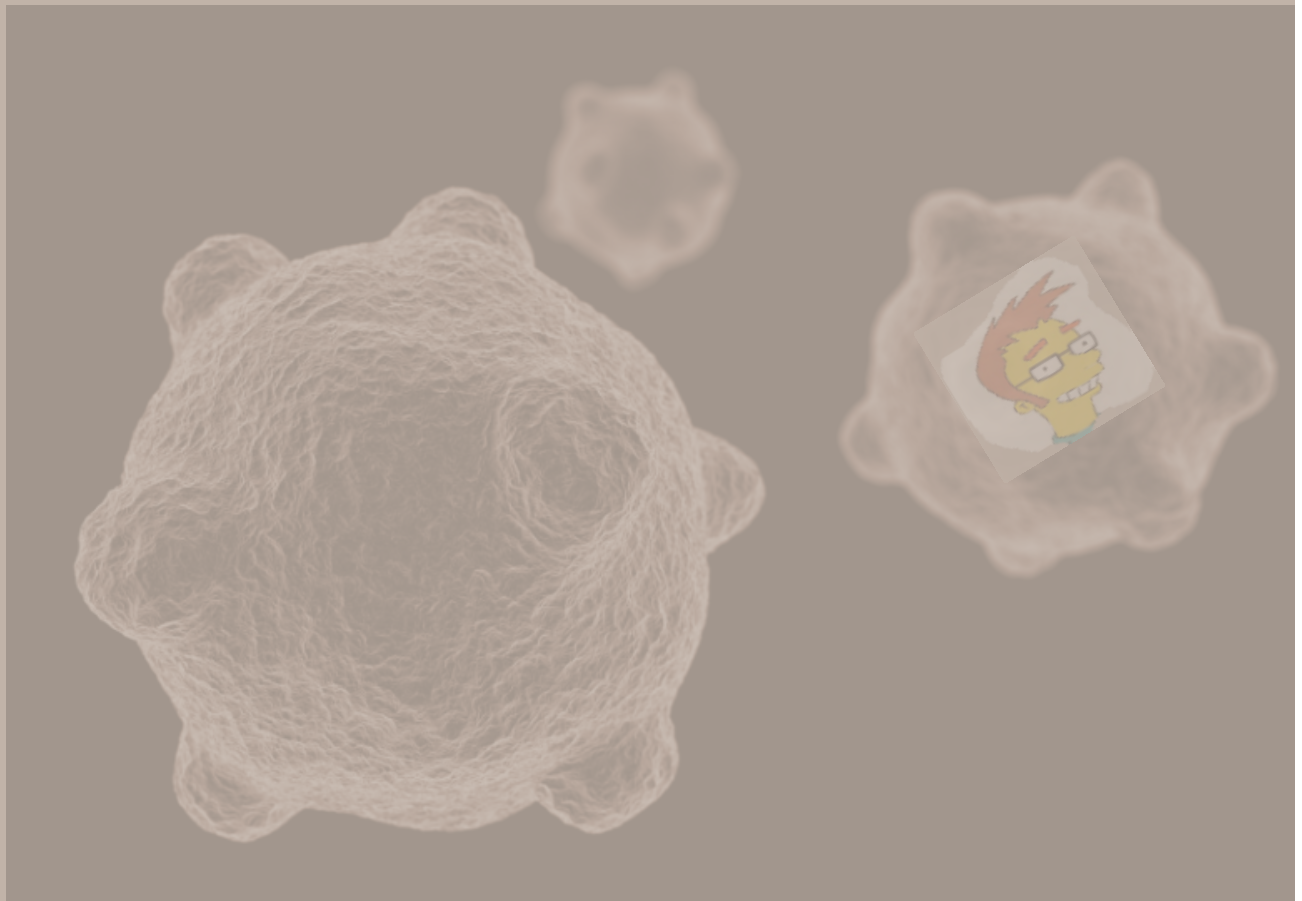


Objective: To write and evaluate exponential expressions that model growth and decay situations.

Use your algebraic expression to find the population of

Biller bacteria

after 12 hours.

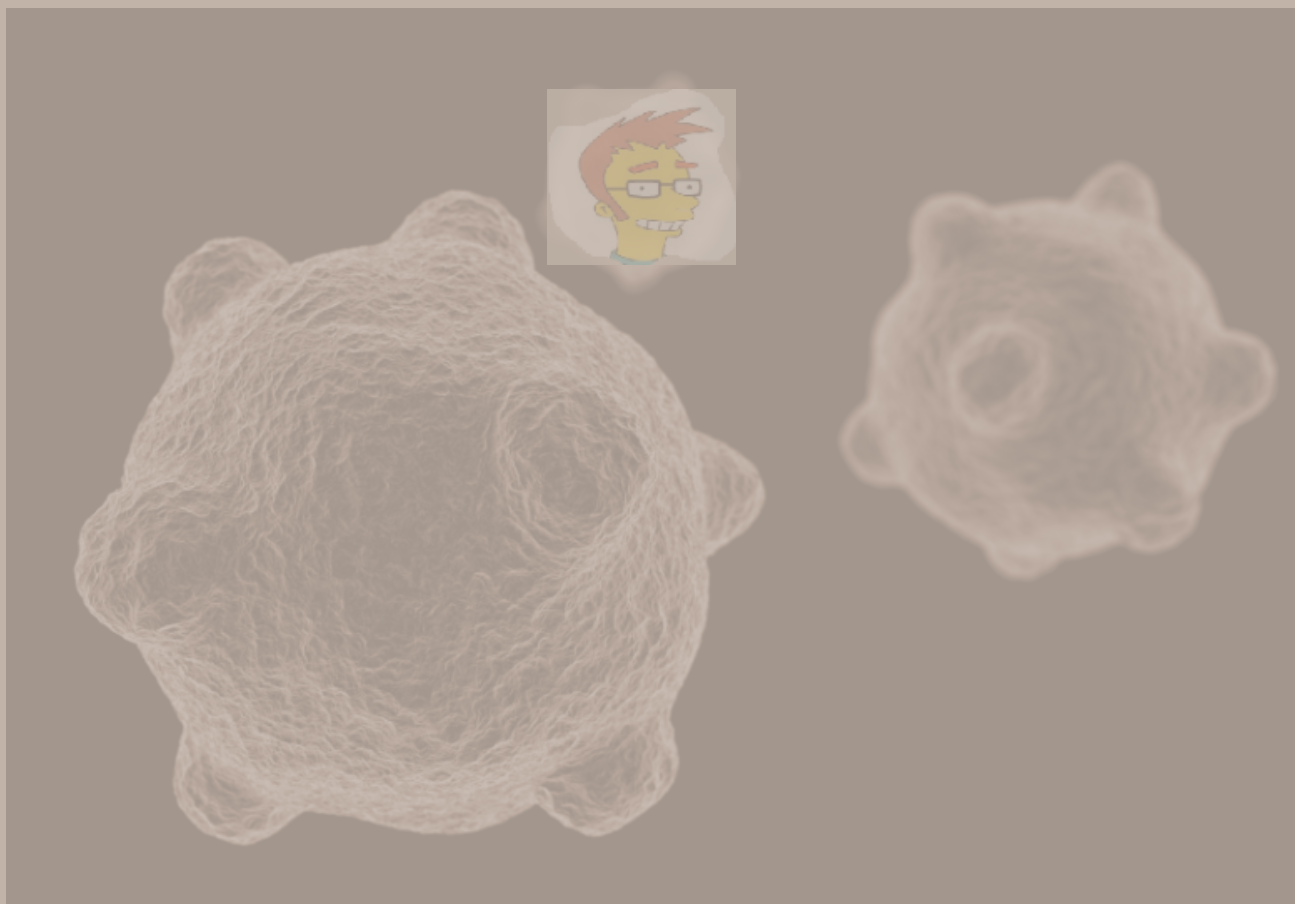


Suppose that the INITIAL population of

Biller bacteria

was 75 instead of 25.

Find the population after 12 hours.



Bacteria that doubles every hour has a population growth rate of 100%.

**Discuss with your partner:
What is the population growth rate
(of humans) in the United States?**

Give your answer as a percent per decade.

8% growth rate
per decade

**Population of U.S.
2009**

303,824,650

Predict the population for the year 2029



To obtain the multiplier for exponential growth, add the growth rate to 100% and write as a decimal.

Write the expression for the population n decades after 2009

Substitute in the number of decades

Exponential DECAY

The rate at which caffeine is eliminated from the bloodstream of an adult is about 15% per hour. An adult drinks a cup of coffee and the caffeine in his bloodstream reaches a peak level of 30 milligrams. Predict the amount of caffeine remaining 4 hours after the peak level (to the nearest tenth of a milligram).



Homework

Is it just me? Or is our homework growing

EXPONENTIALLY?

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(13, 14, 37, 40, 43-46 all 48, 53)